Warm Up # 5-2

1. Write the point slope equation of the line through (4, 6) and (11, 9).

2. Write in vertex form, sketch the graph, state domain, range, vertex and equation for the axis of symmetry.

$y = x^2 - 2x - 3$

HW Questions: p. 541

2 Consider the function $f(x) = 2 + 3^{-x}$.

a For the graph of $y = f(x)$, determine:

i the y-intercept **ii** the equation of the horizontal asymptote

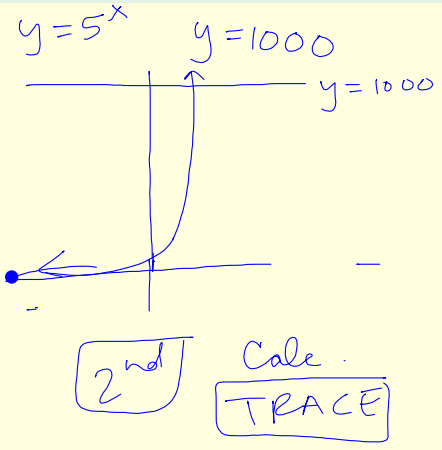
iii $f(-2)$ and $f(2)$.

b Sketch $y = f(x)$, showing the details found in **a**.

c Write down the domain and range of $y = f(x)$.

3 Use technology to solve:

a $5^x = 1000$ **b** $15 \times (1.6)^x = 80$ **c** $400 \times (0.98)^x = 70$

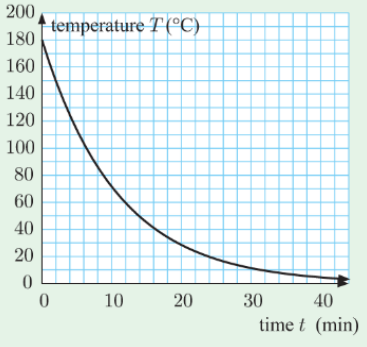


5 The graph opposite shows the temperature of a pie put in the fridge immediately after it is cooked. The temperature after t minutes is given by $T(t) = T_0 \times (1.097)^{-t}$ °C.

a Use the graph to find T_0.

b What is the temperature of the pie after 20 minutes?

c The pie is to be served at 5°C. How long after cooking can it be served?



Rev. Set 18B

3 The weight of a lump of radioactive plutonium after t years is given by $W(t) = 60 \times (0.95)^t$ grams.

a Find the original weight of the plutonium.

b Find the weight remaining after: **i** 10 years **ii** 50 years.

c How long will it take for the plutonium to decay to 1 gram?

$1 = 60(0.95)^t$

4 Consider the function $f(x) = -2 \times 3^x - 4$.

a For the graph of $y = f(x)$, determine:

i the y-intercept **ii** the equation of the horizontal asymptote

iii $f(-2)$ and $f(2)$.

b Sketch $y = f(x)$, showing the details found in **a**.

c Write down the domain and range of $y = f(x)$.

5 8 pairs of rhinoceroses are introduced onto an Indonesian island. The expected population after n years is given by $P(n) = P_0 \times (1.03)^n$.

a State the value of P_0.

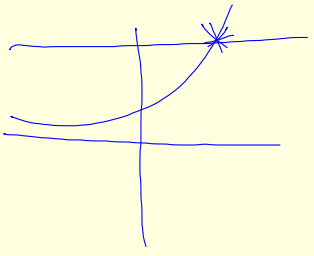
b Find the expected population after 25 years.

c Once there are 40 pairs of rhinoceroses, a new colony can be formed. When is this expected to occur?

$80 = 16(1.03)^n$

$5 = 1.03^n$

$y = 5$ $y = 1.03^n$



Classwork:

Accuracy and Percentage Error

Blue Worksheet

p. 59 # 3, 6, 8, 11, 13

p. 62 # 1, 3

HW:

2G p. 59, # 4, 7, 9,12

2H p. 62, # 2, 5